

[54] INSTRUMENT FOR MEASURING PACKAGE SEALS

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[56] References Cited

U.S. PATENT DOCUMENTS

3,251,218 5/1966 Russell 73/52
4,012,945 3/1977 Bergstrand 73/49.2
4,118,972 10/1978 Goepner et al. 73/40
4,205,551 6/1980 Clifford et al. 73/52
4,517,827 5/1985 Tapscott 73/45.4

4,539,836 9/1985 Hester et al. 73/49.3
4,593,554 6/1986 Aarts 73/49.3

FOREIGN PATENT DOCUMENTS

105033 6/1983 Japan 73/49.3
7810210 4/1980 Netherlands 73/52

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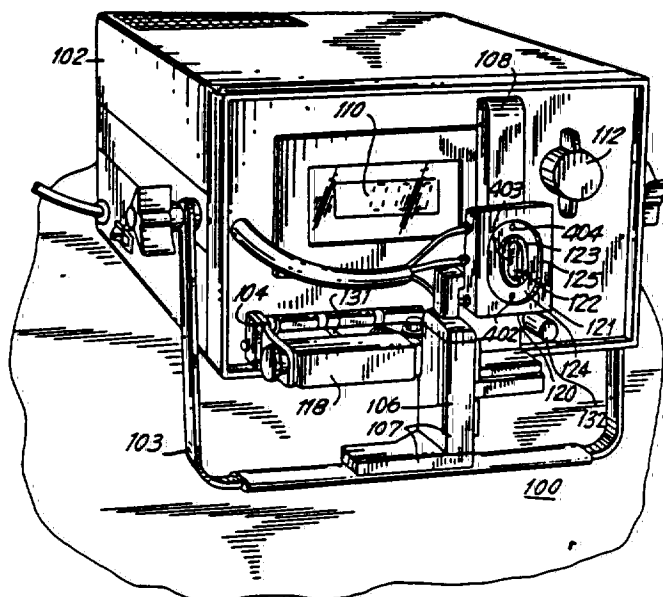
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[57] ABSTRACT

An apparatus for testing the quality of a seal on a package overwrap having a cutting or burning element to create a hole in the package overwrap without breaching the integrity of the package; a measuring head for introducing super-atmospheric air pressure through the hole between the overwrap and the package; and a pressure transducer for determining whether the rate of air leakage from the overwrap is within acceptable limits.

20 Claims, 6 Drawing Sheets



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